

In the Claims

1. [Currently Amended] Integrated circuitry comprising:

a monolithic semiconductive substrate;

a plurality of field effect transistors formed using the monolithic semiconductive substrate and comprising a plurality of electrical contacts including a plurality of gate contacts and a plurality of power contacts including source contacts and drain contacts, wherein the field effect transistors are coupled in parallel with one another to form a power semiconductor switching device and wherein respective ones of the power contacts of the field effect transistors are coupled in common with one another; and

auxiliary circuitry formed using the monolithic semiconductive substrate and configured to couple with at least one of the electrical contacts of the power field effect transistors; and

wherein the field effect transistors comprise 5,000, or more, transistors coupled in parallel to form the power semiconductor switching device.

2. [Original] The circuitry of claim 1 wherein the field effect transistors comprise planar field effect transistors.

3. [Original] The circuitry of claim 1 wherein the auxiliary circuitry comprises a gate driver amplifier configured to provide a control signal to the electrical contacts of the field effect transistors comprising the gate contacts.

4. [Original] The circuitry of claim 1 wherein the auxiliary circuitry comprises a power converter controller configured to provide a control signal to the electrical contacts of the field effect transistors comprising the gate contacts.

5. (Previously Amended) The circuitry of claim 1 wherein the gate contacts are coupled in common with one another.

6. [Original] The circuitry of claim 1 wherein the auxiliary circuitry comprises an application specific integrated circuit.

7. [Original] The circuitry of claim 1 wherein the auxiliary circuitry comprises a zero-current switching/timing circuit.

8. [Original] The circuitry of claim 1 wherein the auxiliary circuitry comprises a load protection circuit.

9. [Original] The circuitry of claim 1 wherein the auxiliary circuitry comprises an active snubber circuit.

10. [Original] The circuitry of claim 1 wherein the power semiconductor switching device and the auxiliary circuitry are formed upon a die.

11. [Original] The circuitry of claim 1 wherein the field effect transistors comprise MOSFET devices.

12. [Currently Amended] A method of forming a power transistor comprising:
providing a monolithic semiconductive substrate having a surface;
forming a power field effect transistor comprising a plurality of planar field effect transistors electrically coupled in parallel using the monolithic substrate and having a source contact and a drain contact adjacent to the surface, wherein the power field effect transistor is configured to operably conduct power currents; and
forming auxiliary circuitry using the monolithic semiconductive substrate, the forming comprising coupling the auxiliary circuitry with at least one contact of the power field effect transistor; and
wherein the forming the power field effect transistor comprises configuring the power field effect transistor to operably conduct power currents in excess of 1 Ampere.

13. [Original] The method of claim 12 wherein providing comprises providing the substrate comprising a semiconductor die.

14. Canceled.

15. [Original] The method of claim 12 wherein the forming auxiliary circuitry comprises forming a gate driver amplifier configured to provide a control signal to a gate contact of the power field effect transistor.

16. [Original] The method of claim 12 wherein the forming auxiliary circuitry comprises forming a power converter controller configured to provide a control signal to a gate contact of the power field effect transistor.

17. [Original] The method of claim 12 wherein the forming auxiliary circuitry comprises forming the auxiliary circuitry comprising application specific integrated circuitry.

18. [Original] The method of claim 12 wherein the formings individually comprise forming the power field effect transistor and the auxiliary circuitry comprising CMOS devices.

19. [Original] The method of claim 12 wherein the forming auxiliary circuitry comprises forming the auxiliary circuitry comprising zero-current switching\timing circuitry.

20. [Original] The method of claim 12 wherein the forming auxiliary circuitry comprises forming the auxiliary circuitry comprising active snubber circuitry.

21. [Original] The method of claim 12 wherein the forming auxiliary circuitry comprises forming the auxiliary circuitry comprising load protection circuitry.

22. [Original] The method of claim 12 wherein the forming the power field effect transistor comprises forming a plurality of MOSFET devices.

23. [Previously Presented] The circuitry of claim 1 wherein the commonly-coupled power contacts of the field effect transistors comprise the source contacts commonly-coupled with one another and the drain contacts commonly-coupled with one another.

24. [Previously Presented] The circuitry of claim 23 wherein the commonly-coupled source contacts are provided at a first common voltage and the commonly-coupled drain contacts are provided at a second common voltage different than the first voltage.

25. [Previously Presented] The circuitry of claim 23 wherein the commonly-coupled source contacts are coupled at a first common node and the commonly-coupled drain contacts are coupled at a second common node.

26. [Previously Presented] The circuitry of claim 1 wherein the power semiconductor switching device is configured to operably conduct power currents in excess of 1 Ampere.

27. [Previously Presented] The method of claim 12 wherein the forming the power field effect transistor comprises forming the plurality of planar field effect transistors including source regions and drain regions adjacent to the surface.

28. Cancel.

29. Cancel.

30. [Previously Presented] The circuitry of claim 1 wherein the field effect transistors comprise a common transistor type.

31. [Previously Presented] The circuitry of claim 1 wherein the field effect transistors comprise only n-channel devices.

32. [Previously Presented] The circuitry of claim 1 wherein the field effect transistors of the power semiconductor switching device are configured to operably conduct power currents in excess of 20 Amperes.

33. [Previously Presented] The method of claim 12 wherein the planar field effect transistors comprise 5,000, or more, transistors coupled in parallel to form the power semiconductor switching device.

34. [Previously Presented] The method of claim 12 wherein the planar field effect transistors comprise a common transistor type.

35. [Previously Presented] The method of claim 12 wherein the planar field effect transistors comprise only n-channel devices.

36. [Previously Presented] The method of claim 12 wherein the forming the power field effect transistor comprises configuring the power field effect transistor to operably conduct power currents in excess of 20 Amperes.

37. [New] Integrated circuitry comprising:
a monolithic semiconductive substrate;
a plurality of field effect transistors formed using the monolithic semiconductive substrate and comprising a plurality of electrical contacts including a plurality of gate contacts and a plurality of power contacts including source contacts and drain contacts, wherein the field effect transistors are coupled in parallel with one another to form a power semiconductor switching device and wherein respective ones of the power contacts of the field effect transistors are coupled in common with one another;
auxiliary circuitry formed using the monolithic semiconductive substrate and configured to couple with at least one of the electrical contacts of the power field effect transistors; and

wherein the field effect transistors comprise only n-channel devices.